



Explanation of Significant Differences

**Tremont City Barrel Fill Site
German Township, Clark County, Ohio**

February 2018



I. INTRODUCTION AND STATEMENT OF PURPOSE

The purpose of this Explanation of Significant Differences (ESD) for the Tremont City Barrel Fill Site (“Barrel Fill Site” or “Site”) is to document significant differences in certain components of the selected remedy, as originally set forth in the Record of Decision (ROD) signed on September 28, 2011. The United States Environmental Protection Agency (EPA) is publishing this ESD in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), 42 U.S.C. § 9617(c), and federal regulations embodying the National Contingency Plan (NCP) at 40 C.F.R. Part 300.

Pursuant to Section 117(c) of CERCLA, the NCP at 40 C.F.R. 300.435(c)(2)(i), and EPA guidance (*viz.*, Office of Solid Waste and Emergency Response Directive 9200.1-23P), if EPA determines that differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the ROD, with respect to scope, performance, or cost, the EPA shall publish an ESD to describe the differences between the remedial action being undertaken and the remedial action set forth in the ROD, and the reasons such changes are being made.

In this case, EPA, as the lead agency, after appropriate consultation with the Ohio Environmental Protection Agency (OEPA), has determined that adjustments to the remedy selected in the ROD are appropriate, and that those adjustments are significant, but do not fundamentally alter, the overall remedy for the Site. The adjustments to the remedy are therefore appropriately documented in an ESD.

Specifically, the remedy adjustments documented in this ESD include the following: (1) the slurry wall and liner with leakage collection system described in the ROD will be replaced with an industry-standard double liner system designed for hazardous waste landfills, and (2) approximately 997 drums containing still-bottom waste will be removed from the Site and transported off site for disposal. These actions will result in an equivalent or enhanced level of protection to human health and the environment compared to the remedy selected in the ROD, with no significant additional cost.

This ESD and all technical information and data relating to it shall become part of the administrative record for the Site (see 40 C.F.R. § 300.825(a)(2)). The administrative record is available for review at the Site information repository located at the Clark County Public Library, 201 South Fountain Avenue, Springfield, Ohio (call 937-328-6903 for hours). The administrative record is also available for review at the EPA Region 5 Superfund Records Center, 77 West Jackson Boulevard (7th floor), Chicago, Illinois, Monday through Friday, 8 a.m. to 4 p.m. central time, by calling 312-886-0900 for an appointment.

Additional information about the Site is available through the following points of contact:

Lead Agency: United States Environmental Protection Agency (EPA)

- *Contact: James Saric, EPA Remedial Project Manager, (312) 886-0992, saric.james@epa.gov*

Support Agency: Ohio Environmental Protection Agency (OEPA)

- *Contact: Chuck Mellon, OEPA Site Coordinator, (937) 285-6056, chuck.mellon@epa.ohio.gov*

II. SITE HISTORY, CONTAMINATION AND SELECTED REMEDY

Site History

The Tremont City Barrel Fill Site (OHD980612188) is a closed, industrial waste landfill that contains approximately 51,500 drums of waste and approximately 304,000 gallons of non-containerized liquid waste. The Site, shown in Figure 1, is located in German Township, Clark County, Ohio, approximately 1.5 miles west of Tremont City, Ohio.

In 1976, OEPA granted a permit for the specific purpose of disposal of industrial sludges and solids (containerized and non-containerized) in the 8.5-acre barrel fill, which began accepting waste material in late 1976. In 1977, N.C. Realty Co., Inc., which, through subsequent name changes, eventually became the Tremont Landfill Company (TLC), transferred the barrel fill property to IWD Chemical Disposal Co., Inc. of Ohio (IWD). The barrel fill operated until late 1979. In 1980, the barrel fill property was transferred to TLC. Waste Management, Inc. (WM) subsequently acquired the shares of IWD, and WM's subsidiary, Chemical Waste Management, Inc., subsequently became the corporate successor of IWD through a merger. TLC is a subsidiary of Diversified Environmental Management Company and a subsidiary of the Danis Companies.

Waste disposed at the Barrel Fill Site was placed in 50 waste cells excavated into natural glacial till material. These cells were approximately 15 to 20 feet deep. Historical records indicate that drums were placed in layers in each of the unlined cells. Pallets were also placed in some of the cells.

After the drums were placed, non-containerized liquid wastes were added to some of the cells prior to backfilling. Disposal records indicate that approximately 51,500 drums and 304,000 gallons of non-containerized liquids, sludges, and biodegradable wastes were disposed at the Barrel Fill Site. Wastes included glues, resins, paint sludge, paint scrap and waste, soap, shampoo, and detergent waste, asbestos slurry, caustic waste, oils, polyol, and other compounds.

The bulk liquids disposed in waste cells were reported to consist of still bottoms, latex glue, soap, asbestos, asbestos water, and paint sludge. The 304,000 gallons of liquid industrial wastes disposed in the waste cells represent materials potentially released or threatened to be released at the time of disposal (approximately 1977). Statements from employees who worked at the barrel fill confirmed the practice of placing non-containerized, bulk materials into the barrel fill. Specifically, these employees recall placing bulk polyol and paint sludges in several of the early disposal cells and placing waste sludges derived from a nearby waste transfer facility's oil-water separation process into waste cells. These employees indicated that the paint sludges may have contained

solvents, and that recovered oils from the waste transfer facility may also have contained solvents and possibly polychlorinated biphenyls, commonly known as PCBs.

In addition to the drum disposal operations, land application and shallow injection of liquid biodegradable wastes from food industry sources occurred in the area north of the Tremont City landfill (which is located south of the Barrel Fill Site, as shown in Figure 1) and adjacent to the Barrel Fill Site between 1979 and 1980. Review of available historical photographs and maps indicates that these disposal operations – which included the shallow injection of biodegradable waste (margarine, corn syrup, baby formula, and other compounds) into surface soils at depths of less than one foot – likely occurred in the area to the south and west of the Barrel Fill Site.

Surrounding Land and Resource Use

The 8.5-acre Tremont City Barrel Fill Site is located in a sparsely populated, rural area. The Site has been closed as a barrel fill operation since 1980, and the land on the Site has not been used for any other purpose since that time. The area surrounding the Site is primarily used for agricultural purposes, with little residential or commercial development. According to German Township records, the Site is currently zoned as M-2 (heavy duty industrial). The land use and the land use designation are expected to remain unchanged.

The geology at the Site consists of limestone bedrock covered by unconsolidated sand and gravel. Overlying the sand and gravel is a mass of low-permeability, clay-rich glacial till that, in places, exceeds 160 feet in thickness. Within the clay-rich glacial till are intertill deposits of fine-grained sand. Some of the intertill deposits are thin, isolated layers of limited areal extent, but three deposits are more extensive. Referred to by their average elevation, and starting with the deepest, they are the 1015 Interill, the 1050 Interill, and the 1075 Interill. The water-bearing units beneath the Site include (starting with the deepest) the limestone bedrock aquifer, the deep sand and gravel aquifer, a 1015 Interill unit, a 1050 Interill unit, a 1075 Interill unit, and a perched water table unit. Much more detailed information about the geology and hydrogeology at the Site is available in the ROD.

There is currently no groundwater use at the Site, and no on-site water supply wells exist. Furthermore, Ohio regulations prohibit installation or use of drinking water wells on a closed landfill, such as the Site. The only nearby surface water body is an unnamed tributary located adjacent to and east of the Site.

Groundwater is the primary source of drinking water in the vicinity of the Site. Eighty-six potable water wells have been identified within one mile of the Site. The deep sand and gravel and the limestone bedrock aquifers are currently being used as a potable water source by nearby residents. The deep sand and gravel aquifer is also used as a drinking water source by communities in the area, including the cities of Springfield and Dayton. EPA and OEPA also consider the 1015 and 1050 Interill units to be potable water sources, but neither of these units are currently being used for drinking water.

Groundwater use in the vicinity of the Site is expected to continue in the same manner as described above.

Site Contamination

The remedial investigation (RI) concluded that Site contamination is limited to the bulk liquids and soils in the barrel fill, the perched water table in the barrel fill, and, to a minimal extent, the 1075 Intertill. In 2014, OEPA conducted a new round of groundwater sampling at wells located in the perched water table in the barrel fill, the 1075, 1050 and 1015 intertills, and the sand and gravel aquifer. The groundwater results were consistent with those described in the ROD, specifically that shallow groundwater (the perched water table and, to a minimal extent, the 1075 Intertill) has been impacted by the Barrel Fill, but the deeper aquifers have not been impacted by the Barrel Fill. The ROD was based on the potential for migration of contaminated groundwater into the deep sand and gravel aquifer underlying the Site, and the potential for subsequent further migration which could then pose a threat to municipal water supply wells for nearby communities.

Contaminants identified in samples collected during the RI were consistent with the types of industrial waste known to have been disposed at the Barrel Fill Site. Analyses of waste materials collected from the sampled drums and cell water indicated the presence of a number of organic and metals contaminants. Generally, these contaminants include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and pesticides. Specifically, concentrations of all 24 Target Analyte List metals were detected in waste samples, though not in each sample. Twenty of the 22 pesticides present in the Target Compound List (TCL) were also detected in wastes analyzed during the RI (toxaphene and chlordane were not detected). Forty-four of 68 TCL SVOC compounds were detected within waste samples, as were 40 of the 50 TCL VOCs.

The detected contaminants from test pit water and saturated soils adjacent to waste cells sampled during the RI were consistent with historical disposal practices. Analytical results of water and soil samples collected from the test pits were consistent with what would be expected from water samples collected from disposal areas. Observations made during waste cell characterization activities and the results of water and soil analyses indicated significant concentrations of industrial chemicals.

Selected Remedy

This section of the ESD describes the remedy as selected in the ROD. As detailed in the ROD, the major components of the selected remedy (Alternative 9a) are:

- Removing and stockpiling uncontaminated cover soil (estimated to be up to 17 feet deep) outside the work area;
- Pumping cell water and non-containerized liquid from the excavations and managing the liquids for off-site treatment and disposal;
- Excavating the contents (drums, non-containerized waste and impacted soil) of each of the 50 waste cells. Those non-containerized wastes, including

sludge, that are determined to be liquid by the paint filter test will be managed as a liquid for off-site treatment and disposal;

- Characterization of the excavated wastes. Non-compatible wastes will not be staged and/or stored in proximity to one another;
- Removing, managing, and off-site treating and disposing of liquid wastes and removal and staging of non-liquid hazardous wastes from drums. Containerized wastes that are determined to be liquid by the paint filter test will be managed as a liquid for off-site treatment and disposal;
- Consolidating non-containerized and drummed solid (hazardous and non-hazardous) wastes and contaminated soil in a newly-constructed engineered lined cell with leachate collection. Before consolidation, the drums and their contents will be crushed to reduce volume and to remove any free liquids contained in the drums;
- Constructing a slurry wall keyed into the glacial till (silty clay) underlying the 1075 Intertill around the Site along with a leakage collection system in the 1075 Intertill;
- Constructing a hazardous waste landfill cap covering the consolidation cell and extending beyond the slurry wall alignment;
- Collecting leakage from the 1075 Intertill and performing leak detection monitoring in the 1050 Intertill;
- Long-term groundwater monitoring and post-closure care; and
- Implementing institutional controls to prevent or limit uses at the Site.

The selected remedy involves full waste excavation, disposal and treatment off-site of all liquid waste, and consolidation of solid hazardous and non-hazardous waste and contaminated soils in an engineered, lined waste cell on-site with leachate and leakage collection systems. The existing soil cover will be removed and staged before excavating drummed and non-containerized waste. All liquid waste, containerized and non-containerized, will be removed from the Site and treated and disposed off-site at a treatment, storage, and disposal facility or at a publicly owned treatment works.

Liquids removed from the Barrel Fill Site will include those that are free-flowing or readily pumpable. EPA will set minimum pump standards for collection of non-containerized, pumpable liquids from the Barrel Fill Site. Liquid wastes will be removed from excavated drums by first decanting liquids, and then collecting released liquids after the drums are crushed. All drums are anticipated to be opened and crushed to facilitate removal of all liquid waste.

Any non-containerized waste, including sludge, that remains in the barrel fill after pumping that, based on field judgment, might not pass the Resource Conservation and Recovery Act (RCRA) paint filter test, will be (1) extracted by other methods and disposed of off-site; or (2) will undergo the RCRA paint filter test and, based on the

results, either managed as liquid waste and disposed of off-site (if it fails the paint filter test) or managed as solid waste by consolidation with the other solid waste and contaminated soils on-site in the newly-engineered, lined waste cell (if it passes the paint filter-test).

An engineered waste cell will be constructed to hold the solid hazardous and non-hazardous waste and the contaminated soils. The engineered waste cell will include a compacted bottom clay liner, backfill of approximately 10 feet of the compacted clean, excavated cover soils, and above that a flexible membrane liner. The waste and soils consolidated in the engineered waste cell will be covered by a hazardous waste cap. A leachate collection system will be installed above the bottom liner, and leachate will be pumped to on-site storage tanks for eventual off-site disposal and treatment.

A slurry wall keyed into the low permeability till beneath the engineered, lined waste cell will be installed around the cell for the purpose of physically isolating the waste and groundwater at the Site. A leakage collection system will be installed beneath the engineered, lined waste cell inside the slurry wall as a back-up system to collect any liquid not collected by the leachate collection system. Any liquid collected in the leakage collection system will be transported off-site for appropriate treatment and disposal.

A review will be conducted within five years after initiation of the remedial action and every five years thereafter to ensure that the selected remedy is protective of human health and the environment.

III. BASIS FOR THE ESD

The modifications to the remedy selected in the 2011 ROD that are documented in this ESD are based on information EPA considered as a result of discussions with various stakeholders. Between 2011 and 2014 EPA participated in several meetings of the Tremont Work Group (TWG), comprised of EPA, OEPA, potentially responsible parties, local government officials, and local community members. In addition, EPA met with various stakeholders several times between 2014 and 2017 to discuss citizen and State concerns with EPA's selected remedy and EPA's evaluation of potential remedy enhancements.

As noted earlier, the ROD was based on the potential for migration of contaminated groundwater into the deep sand and gravel aquifer underlying the Site, and the potential for subsequent further migration which could then pose a threat to municipal water supply wells for nearby communities. However, groundwater contamination has been found only in the perched water table in the barrel fill and, to a minimal extent, the 1075 Intertill unit. Groundwater in all the other hydrogeologic units beneath the Site has not been impacted by the waste at the Site.

Based upon discussions among the parties participating in the TWG between 2011 and 2014, EPA concluded that a more protective and cost-effective approach would be to revise the components of the selected remedy's containment system. Specifically, EPA

decided to replace the slurry wall and the clay/leakage collection system with a second flexible membrane lower liner. This change, to a state-of-the-art, double flexible membrane liner system designed to meet hazardous waste landfill standards, will provide an equivalent or enhanced level of protectiveness, as well as greater cost-effectiveness, than the remedy described in the ROD.

In 2016, EPA evaluated another potential remedy enhancement in response to state and community concerns about the hazardous waste that would be left on site following implementation of the selected remedy. EPA reviewed available waste disposal records to identify whether some drums containing hazardous waste solids presenting the greatest potential hazard could be identified and targeted for removal and off-site disposal. EPA found that the available information was insufficient for such a definitive type of ranking, considering the uncertainty regarding the characteristics of wastes bearing particular waste descriptions, as well as differences among wastes bearing the same waste descriptions. Despite these uncertainties, EPA identified “still bottoms” as a type of waste that is likely to be both hazardous and solid, and whose removal from the Site may be beneficial. Still bottoms are residues from distillation processes such as oil refining and solvent recycling. The distillation unit is called a “still,” and “still bottoms” refer to the unwanted materials that collect at the bottom of the unit. Still bottoms are sludges and can vary in consistency from solid to liquid. Many still bottoms are currently managed as listed hazardous waste. Still bottoms typically contain VOCs and SVOCs, and their compositions vary based on the type of still and distillate. These compounds have the potential to migrate into groundwater.

Disposal records indicate that there are an estimated 997 drums of still bottoms in the barrel fill, most of which are expected to contain waste solids, although some may also contain liquids. These drums arrived at the barrel fill from four different waste generators and are located in multiple levels within 14 different cells. Disposal records indicate the cell numbers and the levels where these drums may be found. However, identification of these drums may be difficult and would require a close examination of drum contents.

Based upon EPA’s evaluation, and after consultation with OEPA and discussions with local government officials and local community members, EPA decided to include the removal and off-site disposal of the estimated 997 drums of still-bottom waste as an additional component of the selected remedy. This remedy component will enhance the protectiveness of the remedy in a cost-effective manner.

On August 18, 2017, EPA received a concurrence letter from OEPA supporting the selected remedy with the changes that are now documented in this ESD. The August 2017 OEPA letter also attached letters from several local and state stakeholders expressing support for the remedy as now modified by this ESD. OEPA also sent a letter to EPA dated January 22, 2018, providing the state’s concurrence on this ESD. Both OEPA letters, including the attachments to the August 2017 letter, are included in the administrative record supporting this ESD.

IV. DESCRIPTION OF SIGNIFICANT DIFFERENCES

This ESD documents two changes to the selected remedy. These changes, as well as their impacts on the cost of the remedy, are discussed below. All other components of the remedy selected by EPA in the 2011 ROD will remain the same.

Double Liner System Instead of Slurry Wall and Clay/Leakage Collection System

Instead of a single flexible membrane liner accompanied by a slurry wall and compacted clay/leakage collection system, these remedy components will be replaced by a second flexible membrane liner. While both options are considered to be comprised of two impermeable layers that would encompass the newly-engineered waste cell, EPA has concluded that the standard double flexible membrane liner system, which is currently required by RCRA regulations at hazardous waste disposal sites, will provide an equivalent or enhanced level of protection to human health and the environment. Re-compacted clay will lie beneath the double-liner system, and there will be a drainage layer and drain pipes in both flexible membrane liners to remove any remaining liquid that might be within the contained wastes. See Figure 2 for a conceptual diagram of the new double-liner containment system.

Removal of Still-Bottom Waste

The removal and off-site disposal of approximately 997 drums of still-bottom waste is added as a component of the selected remedy. While all the waste drums in the barrel fill are being excavated, best practices will be used to identify the estimated 997 drums of still-bottom waste that disposal records indicate are located in multiple levels within 14 different cells. Once identified, the drums of still-bottom waste will be removed and the contents will be transported off-site for disposal. Removal of the drums containing still-bottom waste will enhance the protectiveness of the remedy, as these potentially mobile hazardous materials will be permanently removed from the landfill.

Cost Difference

The estimated cost of the selected remedy in the ROD was \$27.7 million. Replacement of the slurry wall and associated leakage collection system with a second lower liner is estimated to result in a cost savings of \$1.5 million. Removal and off-site disposal of the 997 drums of still-bottom waste is estimated to cost an additional \$776,000. Considering the uncertainty associated with locating, removing, and handling these drums, EPA believes there is no real cost difference between the remedy selected in the ROD and the remedy as modified by this ESD.

V. SUPPORT AGENCY COMMENTS

OEPA has reviewed and supports this ESD for the Tremont City Barrel Fill Site. OEPA indicated its concurrence with the ESD in a letter to EPA dated January 22, 2018. OEPA's concurrence letter is included in the administrative record supporting this ESD.

VI. STATUTORY DETERMINATIONS

The selected remedy as modified by this ESD complies with the statutory requirements of Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), and Section 121 of CERCLA, 42 U.S.C. § 9621. The selected remedy as modified by this ESD will protect human health and the environment, comply with applicable or relevant and appropriate requirements (known as ARARs), be cost-effective, utilize permanent solutions and alternate treatment technologies to the maximum extent practicable, and satisfy the preference for treatment as a principal element of the remedy.

VII. PUBLIC PARTICIPATION COMPLIANCE

In coordination with OEPA, EPA will ensure that a notice that briefly summarizes this ESD is published in a newspaper of local circulation after the ESD is approved. By so doing, EPA will meet the public participation requirements delineated in the NCP at 40 C.F.R. § 300.435(c)(2)(i).

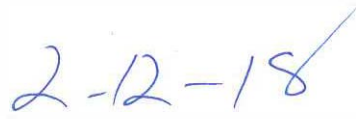
VIII. AUTHORIZING SIGNATURE

EPA has determined that the modifications to the selected remedy documented in this ESD are appropriate, and that the changes are significant but do not fundamentally alter the selected remedial action with respect to scope, performance, or cost. EPA hereby approves the issuance of this ESD for the Tremont City Barrel Fill Site and the changes to the selected remedy stated herein.

Approved by:

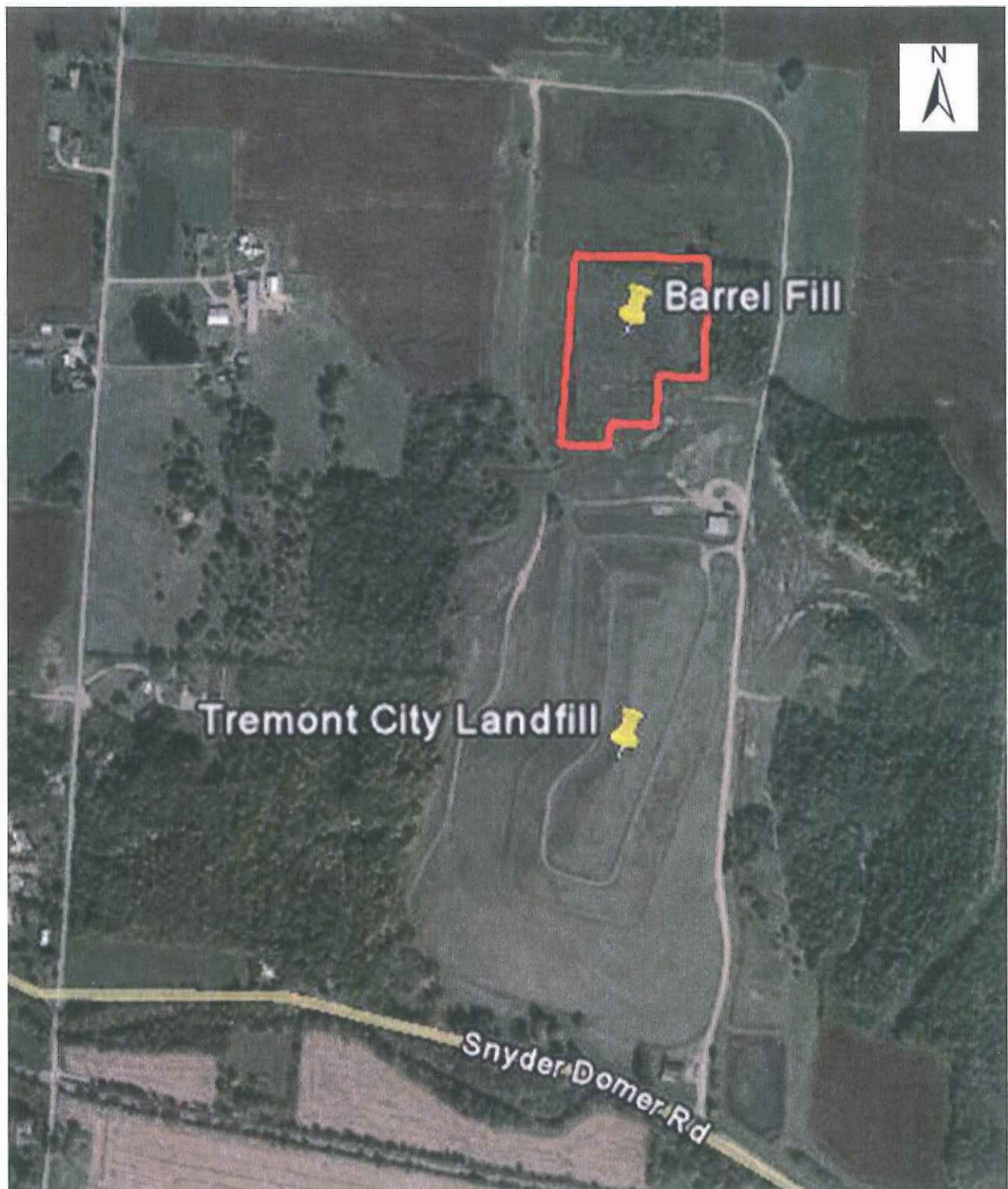


Robert A. Kaplan, Acting Director
Superfund Division
U.S. Environmental Protection Agency
Region 5



Date

Figure 1: Tremont City Barrel Fill Site



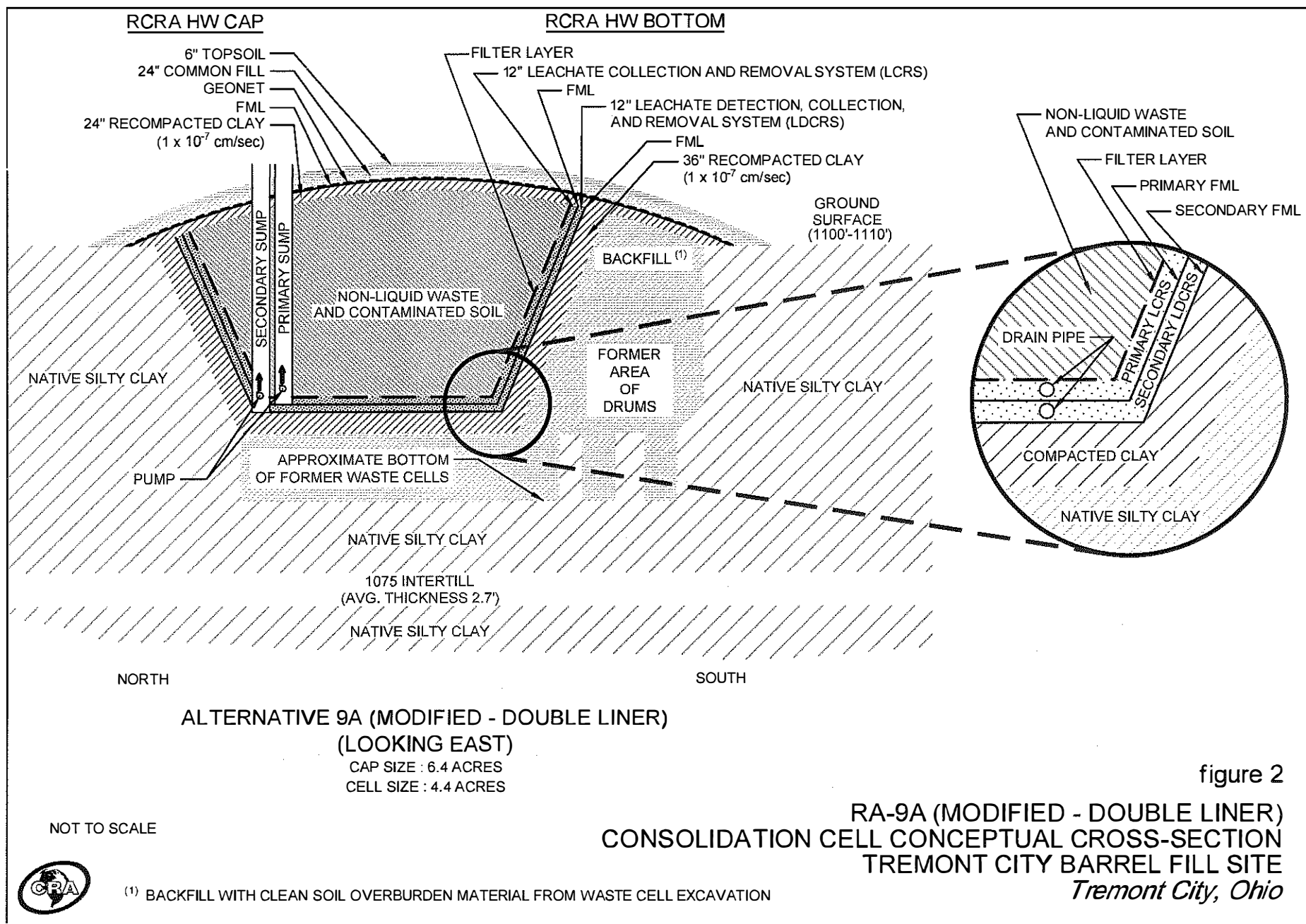


figure 2



ADMINISTRATIVE RECORD INDEX SUPPLEMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY

ADMINISTRATIVE RECORD

FOR THE

TREMONT CITY BARREL FILL SITE

GERMAN TOWNSHIP, CLARK COUNTY, OHIO

UPDATE 44
JANUARY 16, 2018
SEMS ID: 938107

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	<u>405261</u>	5/1/11	CH2M Hill, Inc.	U.S. EPA	Feasibility Study Addendum No. 2	47
2	<u>412028</u>	9/25/11	Karl, R., U.S. EPA	File	Record Of Decision (Rod) (Signed)	273
3	<u>938092</u>	12/1/14	Ohio EPA	File	Summary of Monitoring Wells Sampled and Ground Water Analysis	6
4	<u>938094</u>	12/17/14	File	File	Data Spreadsheet - Sheet 1	144
5	<u>938093</u>	12/18/14	File	File	Data Spreadsheet - Sheet 1	78
6	<u>938095</u>	12/19/14	File	File	Data Spreadsheet - Sheet 1	42
7	<u>938098</u>	1/12/15	Microbac Laboratories	Sigler, V., Ohio EPA	Laboratory Report Number: L14121207	73
8	<u>938100</u>	1/12/15	Microbac Laboratories	Sigler, V., Ohio EPA	Laboratory Report Number: L14121305	45
9	<u>938099</u>	1/16/15	Microbac Laboratories	Sigler, V., Ohio EPA	Laboratory Report Number: L14121208	126
10	<u>922062</u>	8/1/15	U.S. EPA	Public	Fact Sheet: U.S. EPA Responds to your Barrel Fill Cleanup Questions	4
11	<u>927454</u>	6/10/16	U.S. Army Corps of Engineers	Saric, J., U.S. EPA	Final Evaluation of Supplemental Engineering Controls	9

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
12	<u>938104</u>	10/28/16	Christian, C., Tetra Tech, Inc.	Saric, J., U.S. EPA	Memo re: Identification and Removal Hazardous Waste Solids from the Tremont City Barrel Fill Site (Final) [Document Tracking No. 1173]	3
13	<u>938101</u>	11/21/16	Welker, M., People for Safe Water	Butler, C., Ohio EPA	People for Safe Water Letter re: Most Recent Proposal	1
14	<u>938102</u>	7/7/17	Welker, M., People for Safe Water	File	People for Safe Water Resolution	1
15	<u>938103</u>	7/18/17	President of the City Commission & Clerk of the Commission, Springfield Ohio	File	Springfield Resolution - No. 5978	3
16	<u>937440</u>	8/18/17	Butler, C., Ohio EPA	Guerriero, M., U.S. EPA	Letter re: Record of Decision Concurrence	12
17	<u>939050</u>	1/22/18	Saric, J., U.S. EPA	Proffitt, M., OH EPA	OH EPA Letter re: Draft Explanation of Significant Differences (ESD)	1
18	-	-	-	-	Explanation of Significant Differences (ESD) (<i>PENDING</i>)	-